Name Jerry

Student Number _____

STA 441 S2016 Quiz 1

1. (3 Points) Make up an original example of an *experimental* study with one categorical explanatory variable and one categorical response variable. Clearly indicate
   - What the cases are.
   - Which variable is explanatory.
   - Which variable is response.
   - Why the study is experimental rather than observational.

   You have a lot more room than you need for a good answer.

Visitors to a website randomly see either Advertisment A or Advertisment B. Whether or not they purchase the product is recorded.

- The cases are visitors to the website
- The explanatory variable is Ad A vs B.
- The response variable is purchase Yes vs No.
- The study is experimental because of random assignment to advertisment.

2. (2 Points) Label each statement below True or False. Write "T" or "F" beside each statement. You must get at least 6 out of 8 correct in order to get credit for this question.

   (a) T In an experimental study, a statistically significant relationship between the explanatory variable and the response variable can provide some evidence of cause and effect if the study is well controlled.

   (b) F The p-value is the probability that the null hypothesis is true.

   (c) T We observe $r = -0.70$, $p = .009$. We conclude that high values of X tend to go with low values of Y and low values of X tend to go with high values of Y.

   (d) F If $p < .05$ we say the results are statistically significant at the .05 level, and we do not have sufficient evidence to conclude that the explanatory variable and the response variable are related in the population.

   (e) F It is impossible for the explanatory variable and the response variable to be unrelated in the sample, but related in the population.

   (f) F The greater the p-value, the stronger the evidence that the explanatory and response variable are related.

   (g) F An observational study is one in which cases are randomly assigned to the different values of an explanatory variable.

   (h) F When a relationship between the explanatory variable and the response variable is *not* statistically significant, we conclude there is no relationship between the two variables in the population.

3. (5 points) For the Statclass data, what is the mean score on the midterm test?

   - Write the answer in the space below. It is a single number from your printout.
   - Circle the number on your printout. Write "Question 3" beside it.
   - **If you don't have SAS output, do not answer this question.**

68.9

Please attach your log file and your output (results) file to the quiz paper. Make sure your name and student number are written on both printouts.